

Appl. No. 10/028,078
Amdt. Dated 05/02/2005
Reply to Office Action of January 13, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled).
2. (Previously Presented) The method of claim 8 further comprising separating data bits recovered from each block for transmission over at least two different communication paths.
3. (Previously Presented) The method of claim 8, wherein each of the plurality of blocks being equal in length.
4. (Previously Presented) The method of claim 8, wherein the separating of the data comprises:
separating the payload into at least two physical transmission blocks; and
separating each of the at least two physical transmission blocks into the plurality of blocks, each block having a length less than one-half a length of the physical transmission block.
5. (Original) The method of claim 4, where the length of each physical transmission block being approximately forty symbols.
6. (Original) The method of claim 5, wherein the length of each block being approximately four symbols.
7. (Original) The method of claim 6, wherein the four symbols of each block carry a plurality of input bits.
8. (Currently Amended) A method for receiving information over a power line, comprising:

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separating the data within a payload of an incoming frame into a plurality of blocks, the incoming frame including frame control symbols and data; and

processing both the frame control symbols and the data within the blocks by Frame Control Forward Error Correction (FEC) decoding logic, the processing of both the frame control symbols and data of the payload are conducted by the same de-interleaving and decoding operations.

9. (Original) The method of claim 8, prior to conducting at least one of the de-interleaving and decoding operations on the data, the method further comprises:

recovering at least one bit from one of the frame control symbols to detect whether the frame is being transmitted in accordance with a low-rate automation control (LORA) mode.

10. (Cancelled).

11. (Previously Presented) A method comprising:

determining whether a HomePlug compliant station is operating in a low-rate automation control (LORA) mode;

encoding both control information and data within a Frame Control Forward Error Correction (FEC) encoding logic if the HomePlug compliant station is operating in the LORA mode; and

upon determining that the HomePlug compliant station is not operating in the LORA mode,

producing frame control symbols for a frame by the Frame Control FEC encoding logic, and

producing data corresponding to a payload of the frame by a Data FEC encoding logic.

12. (Previously Presented) The method of claim 11, wherein the determination whether the HomePlug compliant station is operating in the LORA mode comprises determining whether a predetermined tone map index is part of the control information.

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13. (Previously Presented) The method of claim 11, wherein the data being encoded is received over at least two communication paths, at least one bit from each of the plurality of blocks is received over a first communication path while the remaining twenty-four input bits of each of a plurality of blocks is received over a second communication path.

14. (Original) The method of claim 13 further comprising:
placing the encoded data within a HomePlug frame; and
transmitting the HomePlug frame over the power line via a primary channel.

15. (Currently Amended) The method of claim 14 further comprising:
placing the ~~extracted~~ at least one bit from each of the plurality of blocks into a frame for transmission over the power line via a secondary channel.

16. (Cancelled).

17. (Currently Amended) A HomePlug compliant station comprising:
a media access control (MAC) layer; and
a physical layer in communication with the MAC layer, the physical layer including a Frame Control Forward Error Correction (FEC) encoding logic to encode and interleave both data and control information associated with ~~the~~ a frame during a first mode of operation and a data FEC encoding logic that, during a second mode of operation, encodes and interleaves the data while the Frame Control FEC encoding logic encodes and interleaves only the control information.

18. (Original) The HomePlug compliant station of claim 17, wherein the control information includes a tone map index value.

19. (Previously Presented) The HomePlug compliant station of claim 17, wherein the Frame Control FEC encoding logic (i) determining a mode of operation of the HomePlug compliant station, and (ii) encoding the control information and data in an iterative manner.

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20. (Previously Presented) The HomePlug compliant station of claim 17, wherein the Frame Control FEC encoding logic (i) determining a mode of operation of the station, (ii) encoding and interleaving the data to produce a plurality of blocks and the control information to produce frame control symbols, (iii) combining multiple blocks, each being generally equivalent in size to four symbols to produce at least two physical transmission blocks, and (iv) combining the at least two physical transmission blocks being generally equivalent in size to forty symbols, to produce a payload of an outgoing frame.

21. (Currently Amended) A HomePlug compliant station comprising:
a receiver to retrieve an incoming frame from a power line; and
a Frame Control Forward Error Correction (FEC) decoding logic, coupled to the receiver,
to de-interleave and decode both data and control information associated with the incoming
frame during a first mode of operation and to de-interleave and decode only the control
information during a second mode of operation.

22. (Currently Amended) The HomePlug compliant station of claim 21 further
comprising:
a data FEC encoding logic to de-interleave and decode only the data associated with the
incoming frame while the Frame Control FEC decoding logic de-interleaves and decodes only
the control information associated with the incoming frame when the station is operating in the
second mode of operation.

23. (Original) The HomePlug compliant station of claim 21, wherein the data is
contained within the payload of the incoming frame.

24. (Original) The HomePlug compliant station of claim 23, wherein the Frame
Control FEC encoding logic (i) determining a mode of operation associated with a transmitting
station, (ii) separating the data of the payload into a plurality of physical transmission blocks,
each of the physical transmission blocks being generally equivalent in size to forty symbols, (iii)
separating each of the physical transmission blocks into the plurality of blocks, each of the
plurality of blocks being equivalent in size to four symbols, and (iv) de-interleaving and

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decoding the symbols within each of the plurality of blocks by the Frame Control FEC decoding logic to recover the data when the determined mode of operation is the first mode of operation.

25. (Currently Amended) Software embodied in a machine-readable medium and executed by a processor, comprising:

a first software module to separate data within a payload of an incoming frame into a plurality of blocks, the incoming frame including frame control symbols and data; and

a second software module to process both the frame control symbols and the data within the blocks by conducting de-interleaving and decoding operations, the second software module operating as a Frame Control Forward Error Correction (FEC) decoding logic.

264. (Currently Amended) The method of claim 8, wherein the processing of both the frame control symbols and the data within the blocks by Frame Control FEC decoding logic includes extracting at least one data bit from a block of the plurality of blocks and routing the at least one data bit over a communication channel separate from a communication channel over which remaining bits of the block are routed.

275. (Currently Amended) The method of claim ~~242~~26, wherein the at least one bit is a single bit for the block and each block of the plurality of blocks.

286. (Currently Amended) The HomePlug compliant station of claim 21, wherein the Frame Control FEC decoding logic extracting at least one data bit from a predetermined data block of the data and routing the at least one data bit over a communication channel separate from a communication channel used for routing remaining data bits of the data block.